REMARKS/ARGUMENTS

Claims 16-18, 20, 24, 26, 32, 33, 37-40, 45-47 and 49-86 are pending. By this Amendment, claims 16, 24, 26, 37-40, 45-47 and 49 are amended, and new claims 50-86 are added. Reconsideration in view of the above amendments and the following remarks is respectfully requested.

At the outset, Applicants appreciate the courtesies extended by Examiner Singh to Applicants' representative during a personal interview conducted on January 26, 2005. Claim 16 has been amended to add the subject matter discussed during the interview and also to remove various language which the Examiner did not appear to believe was material to patentability. As reflected in the Examiner's Interview Summary, claim 16 was considered to be allowable over the cited prior art.

In paragraph 1 of the Office Action, claim 16 was objected to based on the use of the word "type." By this Amendment, claim 16 has been amended to delete the phrase "of the type", thereby obviating the objection.

Reconsideration and withdrawal of the rejection are respectfully requested.

Claims 16-20 and 32-42 were rejected under 35 U.S.C. §102(b) over Bennett (U.S. Patent No. 3,429,390). This rejection is traversed.

Claim 16 is directed to a rock boring device comprising a boom having a first end and a second end, the first end being pivotable about a first boom axis, a disc cutter pivotably mounted to the second end of the boom to pivot about a second boom axis and structured to engage a rock face; and an inertial reaction mass to stabilize the disc cutter. The disc cutter is structured to be driven in an oscillating manner and movable in a nutating manner, the disc cutter rotating about a rotation axis substantially perpendicular to the second boom axis, said disc cutter including a

substantially continuous, circumferential, cutting edge including a leading tip and a trailing heel, the leading tip of the disc cutter being movable along a path that is substantially parallel to the rock face and substantially perpendicular to the rotation axis to effect rock boring, the trailing heel of the disc cutter being spaced from said rock face during cutting.

As discussed during the personal interview, Bennett does not teach at least the following features: 1) a boom having first and second ends and being pivotable about a first boom axis; 2) a disc cutter that is: 2a) pivotably mounted to the second end of the boom, or 2b) movable along a path that is substantially parallel to the rock face; 3) a substantially continuous, circumferential cutting edge, or 4) the trailing heel of the disc cutter being spaced from said rock face during cutting. Moreover, canceled claim 21, which previously recited a boom, was not rejected over Bennett under 35 U.S.C. §102.

Reconsideration and withdrawal of the rejection are respectfully requested.

In paragraph 5 of the Office Action, claims 16-20 and 32-42 were rejected under 35 U.S.C. §103(a) over Zublin or Harris or Willis or Beeman or Bechem et al. in view of Russian Document No. SU581263. This rejection is respectfully traversed at least for the reason that claim 16 now incorporates the subject matter of canceled claim 21 which recited a rock boring device mounted on a boom. The rejection set forth in paragraph 5 of the Office Action does not include claim 21, and therefore it is believed that no comments are necessary regarding this rejection. In addition, claim 16 includes additional features outlined above which patentably distinguishes the cited prior art.

Reconsideration and withdrawal of the rejection are respectfully requested.

Claims 21-27, 30, 31 and 43-49 were rejected under 35 U.S.C. §103 over Stoebe (U.S. Patent No. 6,357,831) in view of Bennett. This rejection is respectfully traversed.

Stoebe is directed to an excavation machine which excavates by applying a large impact or crushing cutting force in a repetitive manner, generally known as impact ripping. Stoebe's excavation machine applies compressive forces to the rock and are subject to extensive impact loading because the cutting tips are forced into engagement with the rock under large loads in order to generate the cracks in the rock, as described in the "Background Art" section of the present application. However, Stoebe does not teach or suggest a disc cutter that is structured to be driven in a oscillating manner and movable in a nutating manner as recited in original claim 16. As acknowledged in the Office Action, Stoebe fails to teach this feature. Bennett was relied upon to show this feature.

As discussed during the personal interview, there is no motivation, outside Applicants' disclosure, to modify Stoebe to include selected features from Bennett to arrive at the language of claim 16, as Stoebe and Bennett operate in significantly different manners. Thus, any motivation to combine Stoebe and Bennett would necessarily be based on impermissible hindsight, which is not a proper basis for rejection.

Moreover, neither Stoebe nor Bennett teaches or suggests that the disc cutter includes a substantially continuous, circumferential cutting edge including a leading tip in a trailing heel, the leading tip of the disc cutter being movable along a path that is substantially parallel to the rock face and substantially perpendicular to the rotation axis to effect rock cutting, the trailing heel of the disc cutter being spaced from said rock face during cutting, as recited in claim 16 as amended herein.

Dependent claims 23, 24, 26, 27, 30, 31 and 43-49 are patentable by virtue of their dependency on claim 16, in addition to the further features they recite. For example, Stoebe does not teach that the boom is adapted to rotate about a longitudinal axis of the boom (claim 26).

Neither Stoebe nor Bennett teaches that the inertial reaction mass is annular and substantially surrounds the disc cutter (claim 45).

Neither Stoebe nor Bennett teaches nor suggests that the boom is pivotable about a first boom axis and rotatable about its longitudinal axis, and that the disc cutter and inertial reaction mass are structured to pivot about a second boom axis substantially perpendicular or transverse to the first boom axis (claim 46).

Stoebe and Bennett fail to teach or suggest that the disc cutter is structured to pivot about the second boom axis in a first direction and the boom is structured to pivot about the first boom axis in the second direction, wherein the first and second directions are substantially the same just before the disc cutter engages the rock face, per claim 47.

In addition, neither Stoebe nor Bennett teaches or suggests that the inertial reaction mass is structured to counteract an impact force created upon impact with the ledge, per claim 49.

Reconsideration and withdrawal of the rejection are respectfully requested.

In paragraph 7 of the Office Action, claims 21-27, 30, 31 and 43-49 were rejected under 35 U.S.C. §103(a) over Stoebe in view of Zublin or Harris or Willis or Beeman or Bechem et al. (as modified by Russian Document '263). This rejection is respectfully traversed at least for the same reasons discussed above in relation to the rejection set forth in paragraph 6. Zublin, Harris, Willis, Beeman, Bechem et al. and Russian Document '263 do not make up for the deficiencies noted above with respect to the Stoebe/Bennett rejection.

In addition, there is no motivation to modify Stoebe to include an oscillating/nutating feature, since any motivation to do such would be based on impermissible hindsight in view of Applicants' disclosure.

Reconsideration and withdrawal of the rejection are respectfully requested.

In paragraphs 8, 9, 10 and 11, claims 28 and 29 were rejected based on various prior art references. However, claims 28 and 29 are patentable at least for the reason that they depend from allowable independent claim 16, either directly or indirectly. In addition, the applied prior art references do not teach or suggest the subject matter of claims 28 or 29, especially in combination with the subject matter set forth in claim 16.

Reconsideration and withdrawal of the rejections are respectfully requested.

In paragraph 12 and 13, the Office Action rejects claims 16-49 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-27 of U.S. Patent No. 6,561,590. However, in view of the above amendments to claim 16, Applicants respectfully submit that the filing of a Terminal Disclaimer would be premature and is unnecessary. However, should the Examiner take a different view, he is invited to contact the undersigned at the telephone number listed below and a suitable Terminal Disclaimer will be prepared for filing with the Patent Office.

Reconsideration and withdrawal of the rejection are respectfully requested.

New claims 50-86 are presented for the Examiner's consideration. Several of the independent claims were discussed during the personal interview, and have been changed for clarity based on the discussion held during the personal interview. Independent claim 83 distinguishes over the prior art of record as there is no teaching of a disc cutter mounted on a boom and which is structured to be driven in an oscillating manner.

In view of the above amendments and remarks, Applicants respectfully submit that all the claims are patentable and that the entire application is in condition for allowance.

Should the Examiner believe that anything further is desirable to place the application in better condition for allowance, he is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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